

When to Harvest Hardwood Sawtimber

Tennessee Department of Agriculture, Division of Forestry

Landowners too often sell their timber when it is in the midst of rapidly adding valuable wood. On the other hand, some landowners hold their timber past its prime and lose wood to breakage, decay, disease, insects and decline. When is the best time to sell hardwood timber, financially speaking?

The first step is to determine whether your trees have potential to increase much in value. Harvest all trees and start over if the present trees

- Are slow-growing or non-commercial species – beech, hickory, elm, sweetgum, blackgum etc.
- Have defective stems -scar at base, major limb in first 17 foot log, lightning scar, large rotten limb just above the first log, crooked etc.
- Are stunted and slow growing (for the site)

Vigorous trees tend to have long sweeping branches like fishing poles and are clearly growing rapidly upward. Stunted trees tend to have crooked spreading branches and flattened crowns.

If you are satisfied that the majority of your trees are healthy and of commercial species, you are ready to consider the profitability of leaving them to grow vs. harvesting now.

Before explaining the details, the bottom line is that it is most profitable to leave hardwood timber on good sites until it is 18" to 28" in diameter.

Now, the details. There are three sources of value increase: **growth**, **rising timber prices** and **grade increases**.

Growth. Generally, *vigorous* poletimber and sawtimber on *good sites* has the potential to increase in volume by 6 to 8% per year.

Rising timber prices. Over the past few decades, timber prices have increased at 4 to 6% per year after inflation is taken into account (better grades and species have increased more in price).

Grade. It is obviously foolish to cut fast growing poletimber for pulpwood when it will be worth much more as timber in just a few years. The same principle applies to small sawtimber – it rapidly grows into higher-grade sawlogs and veneer if it is relatively free of defects. Economic analysis shows that trees should be left if they have the potential to Jump in grade.

If there is little prospect of grade increase in your trees, here are some factors to consider in deciding when to harvest:

- Leave trees longest on the best sites (deep, moist but well drained loamy soil)
- Good diameter growth will yield high increases in value
- Merchantable height increases will yield only slight increases in value
- Large trees of good vigor produce the highest dollar gains, but produce lower gains figured as a percentage of tree value. (In other words, you have a large "investment" tied up in the wood-producing "machinery" of the tree)
- What rate of return do you want?
 - If you demand a high rate (say more than 6%), cut trees sooner (say, 18 to 20 inches)
 - If you are satisfied with a low rate (say 2-4%) you can leave trees longer (say, up to 28 inches)

To calculate what your return will be, use the formula

$$\text{Present Value} = \text{Future Value} / (1+i)^{\text{years}}$$

$$\text{Or } i = \sqrt[\text{years}]{\frac{\text{Future Value}}{\text{Present Value}}} - 1$$

1. Look up the number of board feet in your tree(s) in a volume table (the bottom 16' log is the most important)
2. Measure the growth rate of your tree(s) with an increment borer (do not bore into the merchantable part of high-quality logs)
3. Figure what the diameter will be in "y" years and look up that volume
4. Calculate dollar values based on, say, the Tennessee Department of Agriculture Forest Products Marketing Bulletin
5. Calculate $\sqrt[\text{years}]{\frac{\text{Future Value}}{\text{Present Value}}} - 1$

Example: Present Value of tree = \$100

Value in 5 years expected to be \$147

$$i = \sqrt[5]{147/100} - 1$$

$$i = \sqrt[5]{1.47} - 1$$

$$i = 1.08 - 1$$

$$i = .08 = 8\% \text{ annual interest}$$

Scientific calculators have a \sqrt{x} key. An inverse key (INV) can also be used.

Timber price trends can easily be figured in. In this example, if timber prices are increasing at 6% per year, then your timber is yielding $8\% + 6\% = 14\%$ annually. Any increases in grade will raise this rate further.

Version 12-01